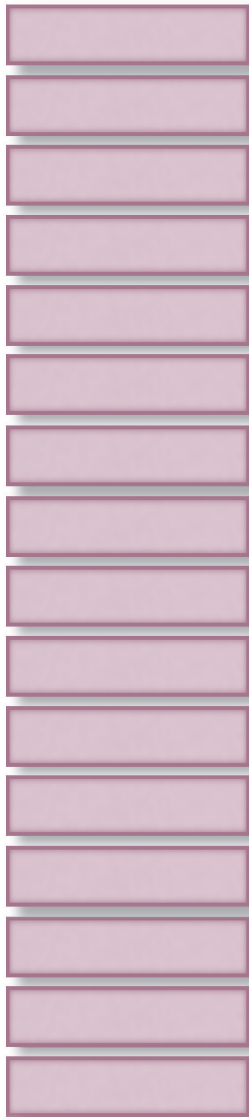


# ***ISTEP+***

## **Grade 7 Science Item Sampler**



Indiana Statewide Testing for Educational Progress

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Dear Colleague:

In this sampler, you will find information designed to guide, direct, and clarify your efforts in preparing for and administering Indiana Statewide Testing for Educational Progress-Plus (*ISTEP+*). We want your students to be prepared to pass *ISTEP+* every time they take the test, and we feel this sampler is an excellent instructional resource.

As a classroom teacher, your knowledge of the Indiana Academic Standards assessed on *ISTEP+* is very important. Your ability to use that knowledge in your instructional strategies with your students and your familiarity with all aspects of test administration are critically important to students' success on the test and with the rest of their coursework. You influence students' choices and futures as well as their academic achievement.

We expect that the information provided in this sampler will help you in your ongoing efforts to educate and motivate your students. Please see the Department of Education's Web site at **[www.doe.state.in.us](http://www.doe.state.in.us)** for additional information about Indiana Statewide Testing for Educational Progress-Plus (*ISTEP+*).

Thank you for all you do to prepare students to meet the challenges they will face in this ever-changing and challenging world.

Sincerely,

A handwritten signature in black ink that reads "Dr. Suellen Reed". The signature is written in a cursive, flowing style.

Dr. Suellen Reed  
Superintendent of Public Instruction

# Introduction

The *Grade 7 Science Item Sampler* provides information about the *ISTEP+* Science test for students, parents, educators, and others affected by the test. The information in this sampler has been compiled by the Division of School Assessment of the Indiana Department of Education and CTB/McGraw-Hill, the test development contractor for Indiana.

The test items (questions) in this sampler are intended to provide teachers with specific examples of how the different standards will be measured on the test. These examples can serve as models when teachers are constructing test items for classroom assessment. The sampler is not a practice test. This book includes sample test items and scoring rubrics that reflect the Indiana Academic Standards for Science adopted in November 2000. All items included in this book are samples only and not actual items. All samples are representative of the types of items that students taking the *ISTEP+* Science Assessment at Grade 7 will be required to answer.

A condensed version of the Indiana Academic Standards is included in this sampler. These are the skills that all Indiana students are required to know and be able to perform. Complete copies of the Indiana Academic Standards can be obtained from the Department of Education's Web site at **[www.doe.state.in.us](http://www.doe.state.in.us)** or directly from the Department of Education.

# Frequently Asked Questions

## **Q. What is the *ISTEP+* Grade 7 Science Assessment designed to do?**

- A.** This assessment measures students' mastery of the Indiana Academic Standards in Science taught in the grade levels **prior** to Grade 7. It is part of a statewide testing program designed to connect student learning, classroom instruction, school improvement, and educational goals. *ISTEP+* results provide information about the strengths and weaknesses of individual students as well as aggregate data about school, district/corporation, and state performance. The test is designed to permit inferences about student achievement in the critical knowledge and skill areas defined by Indiana's Academic Standards and to evaluate curriculum choices and instructional strategies. It is **not** intended that grade-level curricula be restricted to the content of this test. The required criterion-referenced test consists of two parts: the Multiple-Choice Assessment and the Applied Skills Assessment (open-ended items).

## **Q. What are the Indiana Academic Standards?**

- A.** In collaboration with state K–12 educators, the Indiana State Board of Education has adopted world-class standards for each grade level in Science. These learning outcomes require that Indiana schools have rigorous curricula aligned with state standards and that students learn the skills and knowledge deemed necessary for successful performances in school, at work, and in the community. *ISTEP+* testing for Grade 7 Science is based on the academic standards from **previous** school years. Therefore, testing in Grade 7 measures mastery of Indiana Academic Standards for Grades K–6 standards. While these standards set expectations for student learning, they do not prescribe how the standards should be taught. Teachers should use their considerable skills, experience, talents, and creative resources to design standards-based classroom instructional activities tailored to meet the individual needs of their students. Copies of the *Teacher's Edition of Indiana's Academic Standards* have been forwarded to all school administrators.

## **Q. In what ways are *ISTEP+* results linked to state and federal accountability?**

- A.** Indiana is required by state and federal law to administer a statewide assessment program that systematically measures student performance and monitors progress toward pre-established goals by all schools. *ISTEP+* results are a primary component for educational accountability under both Public Law 221 (state) and No Child Left Behind (federal). Testing data are also used to inform local decision making and guide Continuous School Improvement initiatives.

## **Q. How are test items created for this assessment? How does Indiana ensure that the test items are valid and unbiased for our students?**

- A.** Since 1987, in conjunction with a test development company (CTB/McGraw-Hill), Indiana educators have collaborated in all steps of the test design and item development process. Indiana teachers help determine how standards will be tested by providing to the test developer assessment guidelines for the standards. Teachers

review all test items to ensure that they are developmentally appropriate for the grade level and that they accurately measure the standards they were designed to assess. After additional reviews by the Citizens Review Committee and the Sensitivity Review Committee, items are evaluated on a pilot test form administered to Indiana students. Only items approved through these measures will appear on the actual *ISTEP+* assessments.

**Q. How are test items scored?**

- A. Multiple-choice (selected-response) items are scored by machine in Salinas, California. Open-ended (constructed-response) items are read and electronically scored in Indianapolis by trained scorers. Scores on these items are based on correct answers as well as on level of understanding. Rubrics guide scorers in assigning scores on the open-ended items. Each rubric contains a list of acceptable responses (key elements) as well as a description of the level of performance for each score point. If a student gives a response that is not listed as a key element but is conceptually correct, the student receives credit for the response. Anchor papers are selected for each designated score point of an item. These are used as guides for the scorers in scoring the Applied Skills sections.

**Q. How does Indiana ensure that scoring is reliable?**

- A. Potential scorers, who must be college graduates and meet other competitive qualification requirements, are screened carefully during two interviews. Once selected, scorers train for several days with actual student responses from item pilots and must pass a test before they begin to score “live” student responses. The scorers must continue to demonstrate proficiency in following established scoring guidelines throughout their terms of employment. To ensure that grading by all scorers consistently matches the guidelines established in the scoring rubric, the trained scorers are monitored closely by testing supervisors. Each scorer is administered a “checkset” (a set of pre-scored student responses) several times a day that compares his or her grades to those assigned by the supervisor. In addition, the team leader, who works with a team of nine scorers, randomly rescores a percentage of each scorer’s completed items. Finally, 5% of the total responses are rescored daily.

**Q. What is the policy regarding rescoring items?**

- A. Within a specified window of time, a student’s parent or guardian may request a rescoring of specific items from a student’s test. It should be stressed that the scores obtained through the rescoring will be final and that the rescoring may have positive, negative, or no effect on the final score. Scores resulting from rescoring items are unlikely to be more than a few points different from the original score.

**Q. What practices are appropriate when *preparing* students for *ISTEP+*?**

- A. It is important that students anticipate the tests with interest rather than with anxiety. They should realize that they are taking achievement tests that yield



information about the skills they have mastered as well as the skills they need to learn. Point out that questions intentionally cover a range of difficulty. The Department of Education's (DOE) policy about test preparation is that **any activity in the school or classroom that creates an excessive focus on the specific test content of *ISTEP+* for the purpose of artificially raising test scores, whether overt or inadvertent, is inappropriate.** The *Indiana Code of Ethical Testing Practices and Procedures* was created to assist in answering specific questions about what constitutes "excessive focus." This document has been distributed to schools and corporations and may be downloaded from the DOE Web site. For easy reference, the following is a summary of ethical practices.

It is considered **appropriate** to do the following:

- review with all students the skills and concepts taught in previous years (see classroom activities in *Curriculum Frameworks*)
- review *ISTEP+* objectives as part of a general review of curricula
- discuss general test-taking strategies
- talk with students and parents about academic expectations and the importance of setting specific performance goals that enable students to assume responsibility for their learning
- develop instructional objectives based on the Indiana Academic Standards
- use test results as part of a body of evidence in making informed decisions about individuals, educational programs, or curriculum

It is considered **inappropriate** to do the following:

- teach or "cram" *ISTEP+* content (that has not been previously covered) during the time period immediately preceding the examination
- call students' attention to the fact that a similar question will be on the upcoming *ISTEP+*
- review *ISTEP+* related skills and concepts with **only** those students to be tested
- select for review **only** those *ISTEP+* objectives or items on which students performed poorly on previous examinations or focus instructional objectives on specific test items
- copy test items for instructional use or make minor alterations in test items to construct study guides, worksheets, or classroom assessments specifically designed for test preparation purposes
- use current, past, or parallel *ISTEP+* test items as review materials except those authorized for such use by the DOE (the released Applied Skills items found in the *Teacher's Scoring Guide* for Grade 7 Science.)

**NOTE:** Duplication of any part of the test books constitutes a serious breach of security, as some test items may appear in future versions of the test. Exposing students to test questions before testing invalidates test scores and denies students the opportunity to participate in testing.

**Q. What practices are considered inappropriate *during* testing?**

- A. • coaching students in any way (verbally or with gestures or facial expressions)
- using any mechanical or technical device during a session **not** approved for such use, except by students for whom such use is an authorized IEP accommodation
  - answering questions about test items or vocabulary
  - allowing noncertified personnel (e.g., aides or parent volunteers) to administer the test (noncertified personnel may, however, serve as test proctors.)

**Q. How do I access more information about *ISTEP+* and other test-support resources?**

- A. The Department of Education maintains a Web site at **www.doe.state.in.us** that provides immediate access to *ISTEP+* information as well as to legislative updates and information about the Indiana Academic Standards, accountability, school improvement, and professional development. The *ISTEP+* Web page, accessible from this site, includes a calendar with upcoming test dates, bulletins with current testing information, and a list of *ISTEP+* support documents that may be downloaded. These documents include the *Guide to Test Interpretation*; the item samplers for grades 3–9 and the GQE; the teacher’s scoring guides for grades 3–9 and the GQE; and the *ISTEP+ Program Manual*. **Multiple copies of *ISTEP+* support documents should be ordered through the school’s Test Coordinator.**

Questions about assessment not answered in this sampler may be directed to the Division of School Assessment (at **istep@doe.state.in.us**). For questions that deal with science assessment at grades 5 and 7, please contact Becky Carter (at **bcarter@doe.state.in.us**), Science Consultant. The Division of School Assessment’s telephone number is 317-232-9050, and the toll-free *ISTEP+* hotline is 888-544-7837 (888-54ISTEP).



## GRADE 6 INDIANA ACADEMIC STANDARDS

### ☐ **The Nature of Science and Technology**

Students design investigations. They use computers and other technology to collect and analyze data; they explain findings and can relate how they conduct investigations to how the scientific enterprise functions as a whole. Students understand that technology has allowed humans to do many things, yet it cannot always provide solutions to our needs.

### ☐ **Scientific Thinking**

Students use computers and other tools to collect information, calculate, and analyze data. They prepare tables and graphs, using these to summarize data and identify relationships.

### ☐ **The Physical Setting**

Students collect and organize data to identify relationships between physical objects, events, and processes. They use logical reasoning to question their own ideas as new information challenges their conceptions of the natural world.

### ☐ **The Living Environment**

Students recognize that plants and animals obtain energy in different ways, and they can describe some of the internal structures of organisms related to this function. They examine the similarities and differences between humans and other species. They use microscopes to observe cells and recognize cells as the building blocks of all life.

### ☐ **The Mathematical World**

Students apply mathematics in scientific contexts. They use mathematical ideas, such as relations between operations, symbols, shapes in three dimensions, statistical relationships, and the use of logical reasoning in the representation and synthesis of data.

### ☐ **Historical Perspectives**

Students gain understanding of how the scientific enterprise operates through examples of historical events. Through the study of these events, they understand that new ideas are limited by the context in which they are conceived, are often rejected by the scientific establishment, sometimes spring from unexpected findings, and grow or transform slowly through the contributions of many different investigators. (*This standard is not currently assessed by ISTEP+ and should be assessed locally by teachers.*)

### ☐ **Common Themes**

Students use mental and physical models to conceptualize processes. They recognize that many systems have feedback mechanisms that limit changes.

**NOTE:** This page provides an overview of the Indiana Academic Standards. The IDOE Web site at [www.doe.state.in.us](http://www.doe.state.in.us) contains a complete version of the Indiana Academic Standards, which may be downloaded.

# Sample Test Items

## The Nature of Science and Technology

This standard assesses a student's understanding of common processes used in scientific investigations; how differences in procedures can affect results; how scientific knowledge is generated and evaluated; how technology is used in science to extend the ability to collect, store, and analyze data; and how technology can impact society and the environment in positive and negative ways.

**1** Which of these tools would BEST allow a scientist to study an object that was moving very quickly?

- ☒ camera
- ☐ hand lens
- ☐ microscope
- ☐ telescope

**2** Fertilizers are often used on farms, gardens, and lawns to improve plant growth. Which of these is a problem that might result from using fertilizers?

- ☐ Fertilizers may increase soil erosion.
- ☒ Fertilizers may pollute water resources.
- ☐ Fertilizers may decrease nutrients in the soil.
- ☐ Fertilizers may kill beneficial insects such as bees.

**3** Which of these questions would be LEAST important to consider when evaluating a scientific claim?

- ☐ Is the claim supported by a sufficient amount of data?
- ☐ Were the methods used to gather the data appropriate?
- ☐ Are there other scientific claims that can explain the same results?
- ☒ Do the results support the original hypothesis of the investigation?

- 4** Kevin and Rachel each conducted an investigation to see how the growth of tomato plant seedlings is affected by temperature. After two months, Kevin's results showed that the plants grew taller at cooler temperatures. Rachel's results showed that the plants grew taller at warmer temperatures.

Give TWO different reasons that could explain why the results of their investigations were different from each other.

- 1) \_\_\_\_\_  
\_\_\_\_\_
- 2) \_\_\_\_\_  
\_\_\_\_\_

**Key Elements:**

Any two of the following (one key element each):

- They may have used different types of tomato plants.
- They may have given their plants different amounts of light.
- They may have given their plants different amounts of water.
- They may have given their plants different amounts of soil.
- They may have given their plants different types of soil.
- They may have given their plants different amounts of fertilizer.
- other valid reason that could explain why the results of their investigations were different from each other

**Rubric:**

**2 points** Two key elements

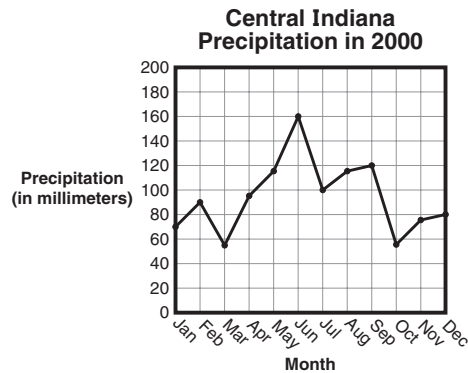
**1 point** One key element

**0 points** Other

## Scientific Thinking

This standard assesses a student's ability to use a variety of scientific skills, such as writing and following procedures, recording and analyzing data, constructing and reading tables and graphs, and comparing and interpreting findings.

- 5** The graph below shows the precipitation in central Indiana for each month during the year 2000.



Which of these conclusions is supported by the data in the graph?

- ☐ There was more precipitation in April than in September.
- ☐ There was less precipitation in December than in January.
- ☒ Precipitation increased monthly from March through May.
- ☐ Precipitation decreased monthly from June through August.

- 6** Students decided to test whether exposing plant seeds to music affects their growth. One group planted tomato seeds and exposed the seeds to music. The other group planted radish seeds but did not expose the seeds to music. Both groups measured the height of the seedlings every Tuesday and Friday for one month.

After comparing the results from both groups, the students concluded that plant seeds exposed to music grow taller. Which of these explains why this conclusion may NOT be correct?

- ☒ Both groups should have used the same kind of seeds.
- ☐ Both groups should have exposed their plants to music.
- ☐ Both groups should have measured with the same ruler.
- ☐ Both groups should have taken measurements every day.

- 7** Brian recorded the number of birds observed at a feeder at 8:00 A.M. each morning for one week. The table below shows his results.

**Number of Birds  
Observed at 8:00 A.M.**

Day	Number of Birds
Sunday	8
Monday	3
Tuesday	4
Wednesday	6
Thursday	3
Friday	8
Saturday	3

What was the MEAN number of birds observed each morning at 8:00 A.M.?

- ☐ 3
- ☐ 4
- ☒ 5
- ☐ 6

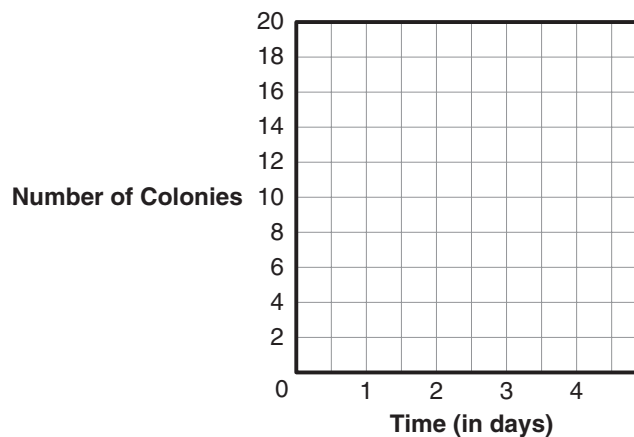
- 8** Students in Mr. Garcia's class rubbed cotton swabs on common objects in their classroom and then rubbed the swabs onto culture dishes. Over the next few days, the students counted the number of germ colonies that formed in the dishes. The table below shows the results for a swab rubbed on a computer keyboard.

**Number of Germ Colonies  
from the Keyboard**

Time (in days)	Number of Colonies
0	0
1	2
2	5
3	9
4	18

Use the information in the table to construct a LINE GRAPH.

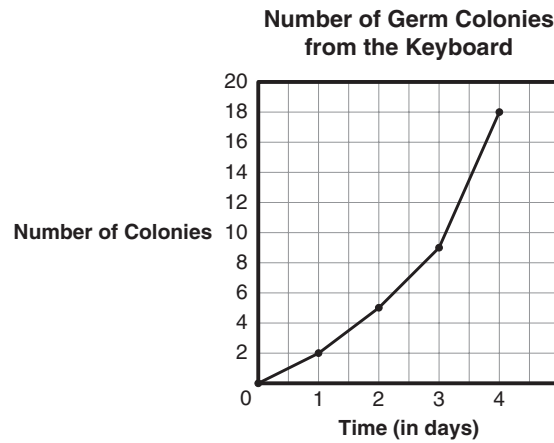
**Number of Germ Colonies  
from the Keyboard**





**Key Elements:**

- All five data points plotted correctly as shown below:



**NOTE:** Do not award any score points if bar graph is drawn.

**NOTE:** Subtract one score point if data points are not correctly connected by lines.

**Rubric:**

- 2 points** Five data points plotted correctly
- 1 point** Three or four data points plotted correctly
- 0 points** Other

## The Physical Setting

This standard assesses a student's understanding of the properties and relationships between objects in space, such as the planets, the moon, the sun, and other stars; the processes and role of the water cycle; the cause of the seasons on Earth; the cause of the phases of the moon; the impact of human activities, such as pollution, on the environment; how forces, including gravity, affect the motion of different objects; and the properties of different types of energy, such as heat, sound, light, and electricity.

**9** Which of these is a result of vibrations in a material?

- ☐ electricity
- ☐ gravity
- ☐ light
- ☒ sound

**10** Drew is pulling a wagon loaded with some wood. Drew adds more wood onto the wagon. If Drew now pulls the wagon in the same direction with the same amount of force, how will the speed of the wagon compare to before?

- ☒ The speed will be lower because the mass has been increased.
- ☐ The speed will be higher because the mass has been increased.
- ☐ The speed will be the same because the amount of force used is the same.
- ☐ The speed will be the same because the direction of the force is the same.

**11** The planet Earth is MOSTLY made of

- ☐ air
- ☒ rock
- ☐ soil
- ☐ water

**12** Describe TWO different processes that are part of the water cycle. Be sure to explain what happens to the water during each process.

- 1) \_\_\_\_\_  
\_\_\_\_\_
- 2) \_\_\_\_\_  
\_\_\_\_\_

**Key Elements:**

Any two of the following (one key element each):

- water changing from liquid to gas/other valid description of evaporation
- water changing from gas to liquid/other valid description of condensation
- rain or snow falling from the sky/other valid description of precipitation
- water flowing across the land/other valid description of surface runoff
- water soaking into or flowing through the ground/other valid description of groundwater flow
- water vapor being given off by plants/other valid description of transpiration
- water changing from solid to gas/other valid description of sublimation
- other valid description of process in the water cycle

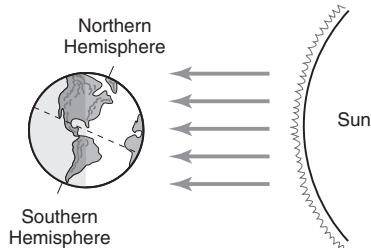
**Rubric:**

**2 points** Two key elements

**1 point** One key element

**0 points** Other

- 13** The diagram below shows the sunlight received by Earth at a certain time of year.



Note: The diagram is not drawn to scale.

Using the diagram, describe how the intensity of the sunlight received by the Northern Hemisphere and Southern Hemisphere compares at this time of year.

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Using the diagram, describe how the number of hours of sunlight received by the Northern Hemisphere and Southern Hemisphere compares at this time of year.

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Using the diagram, what season is each hemisphere experiencing?

Northern Hemisphere \_\_\_\_\_

Southern Hemisphere \_\_\_\_\_

### Key Elements:

#### Intensity of Sunlight

- The sunlight received by the Northern Hemisphere would be more intense/direct.

AND

#### Number of Hours of Sunlight

- More hours of sunlight would be received each day by the Northern Hemisphere.

AND

#### Seasons

- (Northern Hemisphere) Summer, and (Southern Hemisphere) Winter

### Rubric:

**3 points** Three key elements

**2 points** Two key elements

**1 point** One key element

**0 points** Other

## The Living Environment

This standard assesses a student's understanding of how living things consist of cells, how plants and animals obtain energy, how life on Earth depends on the sun, how certain organisms may have characteristics that provide an advantage in survival and reproduction, how organisms interact with each other and with their environment, and how humans have body systems with different functions.

**14** What is the source of energy for life on Earth?

- ☐ air
- ☐ soil
- ☒ sun
- ☐ water

**15** Which of these is the main function of the nervous system?

- ☐ exchanging gases with the air
- ☐ processing food to get energy
- ☒ coordinating functions throughout the body
- ☐ transporting materials throughout the body

**16** In a forest environment, which of these organisms would an owl compete with MOST for food resources?

- ☐ mouse
- ☐ robin
- ☒ snake
- ☐ turtle

- 17** Sometimes an exotic species is accidentally or intentionally introduced into a habitat. For example, purple loosestrife is a plant that originally came from Europe and is now found in many North American wetlands.

Give ONE example that explains how the introduction of an exotic plant might be **HARMFUL** to the native **PLANTS** in a habitat.

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Give ONE example that explains how the introduction of an exotic plant might be **HELPFUL** to the native **ANIMALS** in a habitat.

---

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**Key Elements:**

**Harmful to native plants**

- any reasonable explanation of the exotic plant reducing/replacing the native plants due to increased competition, faster growth, greater reproduction, lack of natural pests, etc.

AND

**Helpful to native animals**

- any reasonable explanation of the exotic plant helping the native animals, such as providing a new food resource, providing new nesting sites, etc.

**Rubric:**

- 2 points** Two key elements  
**1 point** One key element  
**0 points** Other

- 18** The picture below shows a blue heron, a large bird about 1 meter in height that lives near rivers, lake edges, and swamps.



Identify TWO different physical characteristics of a blue heron that give it an advantage in surviving in its environment, AND describe how each characteristic gives an advantage.

- 1) \_\_\_\_\_  
\_\_\_\_\_
- 2) \_\_\_\_\_  
\_\_\_\_\_

**Key Elements:**

Any two of the following (one key element each):

- long legs allow heron to stand/wade in water
- long/flexible toes allow heron to stand/walk on soft ground
- long/sharp beak allows heron to catch its prey/food
- long/muscular neck allows heron to catch its prey/food
- blue-gray feathers/colors allow heron to be camouflaged (from its prey and its predators)
- large body size allows heron to eat variety of prey
- wings/feathers allow heron to escape from its predators (and/or fly to other water sources)
- other valid explanation of a physical characteristic that gives a blue heron an advantage in surviving in its environment

**Rubric:**

**2 points** Two key elements

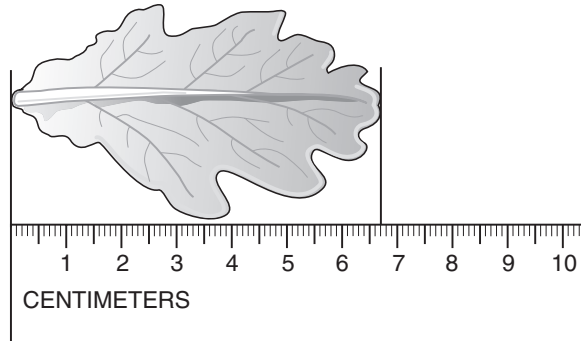
**1 point** One key element

**0 points** Other

## The Mathematical World

This standard assesses a student's ability to use a variety of mathematical skills in scientific contexts, such as making precise measurements using appropriate units, applying geometric and symbolic relationships, analyzing patterns that may be present in data, and using data appropriately to make accurate predictions.

- 19** Look at the leaf and the ruler shown below.



Which of these measurements represents the length of the leaf?

- ☐ 63 centimeters
- ☐ 63 millimeters
- ☐ 67 centimeters
- ☒ 67 millimeters

- 20** Earth and Mars are 56 million kilometers apart when they are closest to each other in their orbits. The table below shows the last four dates when this occurred.

**Dates When Earth and Mars  
Were Closest to Each Other**

Day	Year
August 13	1766
August 18	1845
August 23	1924
August 27	2003

In which of these years will Earth and Mars be closest to each other again?

- ☐ 2072
- ☒ 2082
- ☐ 2172
- ☐ 2182



- 21** A population of frogs lives in a lake near a school. Kara wants to determine the average mass of a frog in the population and whether there is a pattern to the masses within the population. Kara plans to measure 5 frogs from the lake for this investigation.

Explain TWO different reasons why measuring only 5 frogs might NOT be enough to provide accurate data for this investigation.

- 1) \_\_\_\_\_  
\_\_\_\_\_
- 2) \_\_\_\_\_  
\_\_\_\_\_

**Key Elements:**

Any two of the following (one key element each):

- With a small sample, the data may not accurately represent the whole population. (e.g., *there could be a lot more frogs and it might not represent all of them*, etc.)
- With a small sample, extreme/uncommon data may not be represented. (e.g., *she might be missing the really small frogs*, etc.)
- With a small sample, only extreme/uncommon data may be represented. (e.g., *she might pick only the biggest frogs*, etc.)
- With a small sample, there may be little/no variation in the data. (e.g., *the frogs that are picked might all be the same size*, etc.)
- other valid reason why the small sample size might not provide accurate data

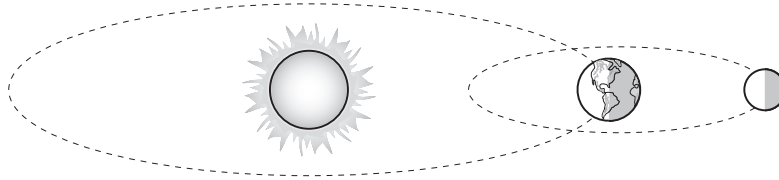
**Rubric:**

- 2 points** Two key elements  
**1 point** One key element  
**0 points** Other

## Common Themes

This standard assesses a student's understanding of how systems consist of interacting parts and processes that may include subsystems, how different types of models can be used to represent phenomena, how models can have advantages but also limitations, how changes may occur in different patterns, and how systems can have feedback mechanisms that limit changes.

**22** A model of the sun, Earth, and the moon is shown below.



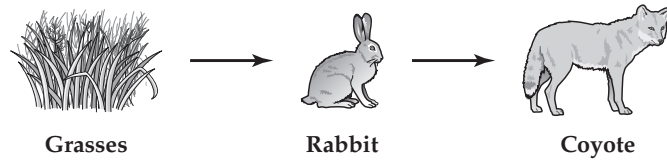
This model can be useful for studying the sun, Earth, and the moon, even though it is not completely accurate. Which of these is an example of something that is NOT accurate in this model?

- ☐ The moon does not orbit Earth.
- ☐ The Earth does not orbit the sun.
- ☒ The sizes of the sun, Earth, and the moon are not to scale.
- ☐ The shapes of the sun, Earth, and the moon are not correct.

**23** Ms. Rogers' class is using a globe of Earth and a flashlight as a model to study the day-and-night cycle. Which of these BEST describes an advantage of using a model to study the day-and-night cycle?

- ☐ The real process cannot be seen, but the model can be.
- ☒ The real process cannot be changed, but the model can be.
- ☐ The real process is too dangerous to study, but the model is safe.
- ☐ The real process is too complex to understand, but the model is simple.

**24** A diagram of a food chain is shown below.



Describe ONE change within the food chain that could cause the number of rabbits to INCREASE.

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The increase in the number of rabbits will lead to other changes. Describe ONE NEW change in the food chain that would LIMIT the increase in the number of rabbits.

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**Key Elements:**

**Cause increase in rabbits**

Any one of the following:

- If the number of grasses were to increase, then the number of rabbits could increase (because more food would be available).
- If the number of coyotes were to decrease, then the number of rabbits could increase (because there would be fewer predators).

AND

**Limit increase in rabbits**

Any one of the following:

- The number of grasses would eventually decrease as the number of rabbits increases (which would result in less food).
- The number of coyotes would eventually increase as the number of rabbits increases (which would result in more predators).

**Rubric:**

- 2 points** Two key elements  
**1 point** One key element  
**0 points** Other

# **ISTEP+ Grade 7 Science Item Sampler**

Indiana Statewide Testing for Educational Progress

